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BOARD OF PATENT APPEALS AND INTERFERENCES

Appln. No.	:	10/692,217
Applicant(s)	:	Peter J. Ulintz
Filed	:	October 23, 2003
T.C./A.U	:	3616
Examiner	:	Laura B. Rosenberg
Docket No.	:	109770.0018

I hereby certify that this correspondence (along with any other paper referred to as being attached or enclosed) is being faxed to APPEAL BRIEF at (571) 273-0053 on the date below.

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BRIEF OF APPELLANT UNDER 37 C.F.R. §1.192

This Appellant's Brief is filed with the Board of Patent Appeals and Interferences further to a Notice of Appeal filed on September 21, 2006.

I. REAL PARTY IN INTEREST

The real party in interest in this matter is the Applicant/Assignee, Anchor Tool & Die Company.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

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III. STATUS OF CLAIMS

Claims 1-30 are pending in the application.

Claims 1-30 stand rejected.

IV. STATUS OF AMENDMENTS TO THE CLAIMS

All amendments to the claims have been entered and are reflected in the Appendix, part VIII of this Brief. No additional amendments to the claims have been made.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The invention is an axially adjustable "telescoping" steering column assembly 100, as shown in FIG. 1 and described in the specification at pages 4-6. The steering column assembly enables relative sliding movement between an outer jacket 110 and an inner jacket 120. The inner jacket 120 has an end which is telescopically received within a distal end 112 of the outer jacket 110. A sleeve 130 is positioned over end 122 of the inner jacket 120 and within distal end 112 of the outer jacket 110. The inner jacket 120 may be fixed to surrounding structure such as bracketry attached to the firewall of the vehicle, so that the outer jacket 110 telescopes relative to, in and out of, the inner jacket 120, along with a two-piece telescoping steering shaft 50 attached to a steering wheel 51. Specification, page, 4, lines 14-23.

A sleeve 130 is provided with internal ribs 132 dimensioned for contact with the outer surface of inner jacket 120, and external ribs 134 dimensioned for contact with the inner surface of outer jacket 110. The internal ribs 132 are preferably radially offset from the external ribs 134 as shown in FIG. 2, although other positions and configurations of ribs are within the scope of the invention, as further described herein, such as the internal and external ribs being radially aligned, or partially radially offset with some overlap of the respective contact surfaces, or radially offset completely with no overlap of the respective contact surfaces. The sleeve 130 preferably remains fixed inside of the outer jacket 110, and in sliding or slidable contact with an inner surface of the outer jacket 110. Alternatively, the sleeve 130 may be fixed relative to the inner jacket 120 and in sliding or slidable contact with outer jacket 110. Specification, page 4, line 24 to page 5, line 4.

As further described at page 5, lines 5-30, the amount of contact area of the external and internal ribs 132, 134 of the sleeve 130 with the opposing jacket surfaces is determined by the

width of the ribs, which can be selectively designed according to the amount of static and kinetic friction desired in the column assembly. In the described embodiment, the total sliding contact surface area of the sleeve 130 is the combined surface area of the internal ribs 132 relative to the inner jacket 120, with the sleeve remaining fixed relative to the distal end 112 of outer jacket 110. The areas 133 between the internal ribs 132 and the outer surface of inner jacket 120 are left open. One or more of the areas 135 between the external ribs 134 and the inner surface of outer jacket 110 can be filled or partially filled with a material 136, such as a filler or bonding material, such as an adhesive, or elastomer or polymer which may have adhesive and elastic properties, or any other material or materials of comparable performance. The filling of area or areas 135 with material 136 compensates for small variations in the wall of outer jacket 110 and also stiffens the sleeve 130 which provides the telescoping bearing surface for the inner jacket 120 as further described. The sleeve 130 does not simply conform to the internal surface of outer jacket 110 as a liner, but rather the presence of external ribs 134 defines the contact surface area between the jackets and enables the sleeve to accommodate both to the interior surface of outer jacket 110 along with any imperfections therein, and to accommodate to the exterior surface of inner jacket 120 as further described. The performance of sleeve 130 as a type of flexible linear bearing can be further tuned by selective placement of material 136 within only certain of areas 135, such as for example those areas 135 located at the radial top and/or bottom of the column (i.e., 0° and 180°) to stiffen the assembly in this dimension most likely to receive an externally applied moment force. Although the sleeve 130 is described in this embodiment as fixedly secured or bonded to the outer jacket 110, other relative arrangements of the components are contemplated as within the scope of the invention. For example, in telescoping column systems in which the inner jacket moves relative to the outer jacket, the sleeve 130 may be fixedly secured to the outer surface of the inner jacket, with the external ribs 134 sliding against the inner surface of the outer jacket.

As further shown in FIGS. 2-4, and described at page 6, lines 1-8, internal ribs 132 define the sliding contact surface areas with the outer surface of inner jacket 120. Placement of the internal ribs 132 in a radially offset arrangement relative to external ribs 134, as shown in FIGS. 2A and 4, enables the wall 131 of sleeve 133 to flex, to thereby accommodate any undulations or variations in the outer surface of inner jacket 120 as it slides along the length thereof in the telescoping operation. Similarly, if the sleeve 130 is fixed relative to the inner jacket 120, the radially offset internal and external ribs 132, 134 allow the wall 131 of the sleeve to flex in order

to accommodate variations in the internal surface or internal diameter dimension of the outer jacket 110.

Alternatively, as shown in FIG. 2B, and described at page 6, lines 9-23, sleeve 130 may be friction fit within outer jacket 110 by contact of biasing ribs 137, which are located radially opposite selected internal ribs 132, or radially opposite each of the internal ribs 132, with external ribs 134 positioned radially between as shown in FIG. 2B. Biasing ribs 137 eliminate the need for a bonding material 136 in areas 135, by compressing the external ribs 134 against the interior of outer jacket 110 to securely position the sleeve 130 between the jackets. With areas 135 left open, the wall 131 of the sleeve 130 is free to flex in a radial directions as described. The friction fit of the enlarged biasing ribs 137 within outer jacket 110 causes some radial distortion of the sleeve and the contact surfaces of internal ribs 132. This can be corrected by machining the inner diameter of the sleeve 130 or of the contact surfaces of internal ribs 132 after the sleeve is installed in outer jacket 110 to the correct tolerance to receive inner jacket 120. Any variations in the outer surface of inner jacket 120 are then accommodated for by the flexure of the wall 131 of sleeve 133. Alternatively, the internal and external ribs 132, 134 of the sleeve 130 may be partially radially offset so that the contact surface areas of the ribs partially radially overlap, as shown for example at the bottom of FIG. 2B.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether Claims 1-3, 5-13, 15-24, 26 and 28-30 are anticipated under 35 U.S.C. 102(b) by Milton et al., U.S. Patent No. 3,703,105.

B. Whether Claims 1, 6, 7, 11, 16, 19-22, 24, 27, 29 and 30 are anticipated under 35 U.S.C. 102(e) by Ulintz, U.S. Patent No. 6,729,648.

C. Whether Claims 4, 14 and 25 are unpatentable under 35 U.S.C. 103(a) by the unsuggested combination of Ulintz '648 in view of Barton, U.S. Patent No. 6,389,923.

VII. ARGUMENT

The following arguments are in support of the Applicant's request in the appeal that the final rejections of the claims be reversed. Each ground of rejection is addressed. The patentability of the claims is argued as grouped in the rejections.

A. Claims 1-3, 5-13, 15-24, 26 and 28-30 stand rejected under 35 U.S.C. 102(b) as anticipated by Milton, U.S. patent No. 3,703,105 ("Milton"). This rejection is in error

because Milton does not disclose the subject matter defined by the words of these claims. Milton discloses a fixed collapsible shift tube assembly 12, Figs. 1 and 2, designed to rotate with the shift lever on a steering column. It is not a telescoping steering column as claimed in this application. Shift tubes were used in vehicles with manual shift operation on the steering column (rather than on the floor) around the time the application for the Milton patent was filed. The steering column disclosed by Milton does not telescope, and thus does not anticipate a principal limitation of the claims. Furthermore, the Milton steering column cannot possibly telescope due in part to the presence of the shift lever 71 on the steering column. The shift tube design has a shear a sleeve member 34 at a predetermined load, thus allowing the column assembly to collapse in a crash when impacted by the driver. The locking sleeve 54 has ribs 88 which are received within slots 74 of the lower member 52 to "provide a firm and rigid engagement between the sleeve 54 and the upper and lower members 50 and 52. See, Milton, col. 6, lines 31-33. The locking sleeve 54 is deformable in one of three ways upon relative axial movement between the upper and lower members 50 and 52 as shown in Figs. 3-6. The knife edge 76 of the slots 74 of the lower member 52 can shear and/or deform the projections 88 of the locking sleeve 54. Alternatively, the knife edges 58 at the upper side of the slots 56 can shear the tabs 86 and the lower end 57a can shear the flange 96 of the sleeve 54. Or both of these actions can occur simultaneously.

The entire purpose of the Milton shift column is to maintain static engagement until a collapsing force is applied. Once the locking sleeve 54 is locked, there can be no relative movement between it and the upper member 50.

"When the tabs 86 are aligned with the slots *56,* the locking sleeve 54 contracts to its former size due to its resilient properties and the projections 86 are received within the slots 56 to attach the sleeve 54 upon the upper member 50. " Milton, col. 6, lines 3-7.

"The engagement between the upper and lower members resulting from the reception of the tabs 86 within the slots 56 and the impressions 88 within the slots 74 is primarily intended to prevent relative angular movement between the upper and lower members 50 and 52 and provides only an incidental or additional restrain to the axially inward collapse of the shift tube assembly 10." Col. 7, lines 2 1-28.

The tabs 86, located within slots 56, are not in contact with the outer surface of a sleeve (upper member 50), and do not equate to the structure of an "internal rib" as defined by claims 1,

11, 21 and 30. In the operative position, with the tabs 86 received within the slots *56,* there is no "outer surface of the sleeve which contacts the inner surface of the of the outer jacket located on at least one external rib" as defined by claim 1.

B. The rejection of claims 1, 6, 11, 16, 19-22, 24, 27, 29 and 30 as anticipated by Ulintz, U.S. Patent No. 6,729,648, is factually flawed and should be reversed. The bearing sleeve 22 of Ulintz has no internal or external ribs. See Ulintz, FIGS. 2-5. The spherical elements 24 held by the bearing sleeve 22 are not ribs, not in the mechanical/structural sense of the word, or as described by the specification of this application. All of the independent claims, 1, 11, 21 and 30 and the corresponding dependent claims of this application include the limitations of internal and external ribs on the sleeve. Therefore, none of the claims of the application are anticipated by the Ulintz '648 patent.

C. The rejection of claims 4, 14 and 25 under 35 U.S.C. 103(a) as unpatentable over Ulintz in view of Barton, U.S. Patent No. 6,389,923 is obviated by the noted differences of the Ulintz patent from the claimed invention, specifically the absence of internal and external ribs on the bearing sleeve 22 in Ulintz.

Based upon the foregoing, namely the lack of anticipation or suggestion by the prior art of the subject matter defined by the claims, reversal of the rejections of the claims is respectfully requested.

Respectfully submitted,
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APPENDIX

VIII. CLAIMS ON APPEAL

Pursuant to 37 C.F.R. §41.37, this Appendix contains a copy of the claims involved in the appeal.

1. A telescoping steering column assembly comprising:

an outer jacket with a first end and a second end;

an inner jacket with a first end and a second end, the first end of the inner jacket dimensioned to be received telescopically within the second end of the outer jacket;

a sleeve having a wall and positioned inside of the outer jacket at the second end of the outer jacket;

the first end of the inner jacket positioned within the sleeve inside the outer jacket;

the assembly configured for relative telescoping movement between the outer jacket and the inner jacket, with an outer surface of the inner jacket in contact with an inner surface of the sleeve, and an inner surface of the outer jacket in contact with an outer surface of the sleeve,

the inner surface of the sleeve which contacts the outer surface of the inner jacket located on at least one internal rib which protrudes from the wall of the sleeve and is aligned with the longitudinal axis of the sleeve, and

the outer surface of the sleeve which contacts the inner surface of the outer jacket located on at least one external rib which protrudes from the wall of the sleeve and is aligned with a longitudinal axis of the sleeve.

2. The telescoping steering column assembly of claim 1, wherein the at least one internal rib of the sleeve is offset from the at least one external rib of the sleeve.

3. The telescoping steering column assembly of claim 1 wherein the sleeve further comprises at least one biasing rib on an exterior of the sleeve wall and which is radially aligned with an internal rib of the sleeve.

4. The telescoping steering column assembly of claim 1 further comprising a bonding agent located between at least two external ribs of the sleeve, the bonding agent forming a bond between the sleeve and the outer jacket.

5. The telescoping steering column assembly of claim 1 wherein a width dimension of an internal rib of the sleeve is greater than a width dimension of an external rib of the sleeve.

6. The telescoping steering column assembly of claim 1 wherein a combined thickness dimension of the wall of the sleeve, at least one internal rib, and at least one external rib is at least equal to a distance between the outer surface of the inner jacket and the inner surface of the outer jacket.

7. The telescoping steering column assembly of claim 1 further comprising a plurality of internal ribs protruding from an interior of the sleeve wall at radially spaced locations.

8. The telescoping steering column assembly of claim 7 further comprising a plurality of external ribs protruding from an exterior of the sleeve wall at radially spaced locations and radially offset from the radially spaced internal ribs.

9. The telescoping steering column assembly of claim 1 wherein the surface area of the at least one internal rib in contact with the inner jacket is greater than a surface area of the at least one external rib in contact with the outer jacket.

10. The telescoping steering column assembly of claim 1 wherein the wall of the sleeve is flexible between the outer surface of the inner jacket and the inner surface of the outer jacket.

11. A steering column assembly comprising:

an inner jacket having a first end and a second end;

an outer jacket having a first end and a distal end, the second end of the inner jacket inside the outer jacket and extending through the distal end of the outer jacket;

a sleeve which fits between the inner jacket and the and the outer jacket, the sleeve having internal ribs which contact an outer surface of the inner jacket, and external ribs which contact the inner surface of the outer jacket.

12. The steering column assembly of claim 11 wherein the internal and external ribs of the sleeve are generally aligned with a longitudinal axis of the sleeve, and at least one of the internal ribs of the sleeve is offset relative to at least one of the external ribs of the sleeve.

13. The steering column assembly of claim 11 wherein the sleeve further comprises at least one biasing rib on an exterior of the sleeve which is radially aligned with an internal rib of the sleeve.

14. The steering column assembly of claim 11 further comprising a bonding agent located between the sleeve and the outer jacket.

15. The steering column assembly of claim 11 wherein a width dimension of an internal rib of the sleeve is greater than a width dimension of an external rib of the sleeve.

16. The steering column assembly of claim 11 wherein a combined thickness dimension of the wall of the sleeve, at least one internal rib, and at least one external rib is at least equal to a distance between the outer surface of the inner jacket and the inner surface of the outer jacket.

17. The steering column assembly of claim 11 wherein a segment of the sleeve extends past the distal end of the outer jacket.

18. The steering column assembly of claim 11 wherein the sleeve is able to flex between the outer surface of the inner jacket and the inner surface of the outer jacket.

19. The steering column assembly of claim 11 wherein the outer jacket is fixed, the sleeve is secured to the outer jacket, and the inner jacket is able to telescope relative to the outer jacket and sleeve.

20. The steering column assembly of claim 11 wherein the inner jacket is fixed, the sleeve is secured to the outer jacket, and the outer jacket and sleeve are able to telescope relative to the inner jacket.

21. A steering column assembly comprising:

an inner jacket positioned within and outer jacket;

a sleeve positioned between opposing surfaces of the inner and outer jackets, the sleeve having internal ribs which contact the inner jacket, and external ribs which contact the outer jacket, whereby a wall of the sleeve is spaced from the inner jacket and the outer jacket.

22. The steering column assembly of claim 21 wherein the sleeve is fixed relative to the outer jacket.

23. The steering column assembly of claim 21 wherein the internal ribs and external ribs of the sleeve are radially offset.

24. The steering column assembly of claim 21 wherein at least one of the internal ribs of the sleeve is radially aligned with one of the external ribs of the sleeve.

25. The steering column assembly of claim 21 further comprising a bonding agent between the wall of the sleeve and the outer jacket.

26. The steering column assembly of claim 21 wherein the sleeve is made of a material which is relatively more flexible than a material from which the inner jacket and outer jacket is made.

27. The steering column assembly of claim 21 wherein the sleeve is located entirely within the outer jacket.

28. The steering column assembly of claim 21 wherein a width dimension of the internal ribs is greater than a width dimension of the external ribs.

29. The steering column assembly of claim 21 wherein a thickness dimension of the wall of the sleeve is greater than a thickness dimension of the internal and external ribs of the sleeve.

30. A telescoping jacket assembly for use in combination with a telescoping steering column, the telescoping jacket assembly comprising:

an outer jacket;

an inner jacket telescopically received within the outer jacket;

a sleeve between the outer and inner jackets, the sleeve having a wall and at least two internal ribs which protrude from an interior of the wall and contact an outer surface of the inner jacket, and at least two external ribs which protrude from an exterior of the wall and contact an inner surface of the outer jacket to thereby space the wall of the sleeve from the outer jacket and the inner jacket.

IX. EVIDENCE

No additional evidence is presented.

X. RELATED PROCEEDINGS

There are no related appeals, interferences or proceedings.

Independent Claims on Appeal–Annotated –subject matter defined–37C.F.R. 41.37(c)(1)(v)

1. A telescoping steering column assembly 100 comprising:

an outer jacket 110 with a first end and a second end 112;

an inner jacket 120 with a first end and a second end, the first end of the inner jacket dimensioned to be received telescopically within the second end of the outer jacket;

a sleeve 130 having a wall and positioned inside of the outer jacket at the second end of the outer jacket (FIG. 1);

the first end of the inner jacket positioned within the sleeve inside the outer jacket (FIG. 1);

the assembly configured for relative telescoping movement between the outer jacket and the inner jacket, with an outer surface of the inner jacket 120 in contact with an inner surface of the sleeve 130, and an inner surface of the outer jacket 110 in contact with an outer surface of the sleeve 130 (FIG. 1, FIG. 2A, FIG. 3),

the inner surface of the sleeve 130 which contacts the outer surface of the inner jacket 110 located on at least one internal rib 132 which protrudes from the wall of the sleeve and is aligned with the longitudinal axis of the sleeve (FIG. 1, FIG. 2A, FIG. 3), and

the outer surface of the sleeve which contacts the inner surface of the outer jacket located on at least one external rib 134 which protrudes from the wall of the sleeve and is aligned with a longitudinal axis of the sleeve (FIG.3).

11. A steering column assembly 100 (FIG. 1) comprising:

an inner jacket 120 having a first end and a second end;

an outer jacket 110 having a first end and a distal end, the second end of the inner jacket inside the outer jacket and extending through the distal end of the outer jacket (FIG. 1);

a sleeve 130 which fits between the inner jacket and the and the outer jacket, the sleeve having internal ribs 132 which contact an outer surface of the inner jacket 120, and external ribs 134 which contact the inner surface of the outer jacket 110.

21. A steering column assembly 100 (FIG. 1) comprising:

an inner jacket 120 positioned within and outer jacket 110;

a sleeve 130 positioned between opposing surfaces of the inner and outer jackets, the sleeve having internal ribs 132 which contact the inner jacket, and external ribs 134 which contact the outer jacket (FIGS. 2A, 3), whereby a wall of the sleeve is spaced from the inner jacket and the outer jacket.

30. A telescoping jacket assembly 100 (FIG. 1) for use in combination with a telescoping steering column, the telescoping jacket assembly comprising:

an outer jacket 110;

an inner jacket 120 telescopically received within the outer jacket;

a sleeve 130 between the outer and inner jackets, the sleeve having a wall 131 and at least two internal ribs 132 which protrude from an interior of the wall and contact an outer surface of the inner jacket, and at least two external ribs 134 which protrude from an exterior of the wall and contact an inner surface of the outer jacket 110 to thereby space the wall of the sleeve from the outer jacket and the inner jacket (FIG. 2A, FIG. 3).

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